## WHAT IS CLAIMED IS:

- A portable DNA sequence comprising a series of nucleotides capable of directing intracellular production of metalloproteinase inhibitors.
- 2. The portable DNA sequence of claim 1 wherein said sequence is capable of directing intracellular production of collagenase inhibitors.
- 3. The portable DNA sequence of claim 1 wherein said nucleotide sequence is:

10	20	30		50	60
GTTGTTGCTG	TGGCTGATAG	CCCCAGCAGG		GTGTCCCACC	CCACCCACAG
70	80	90	100	110	120
ACGGCCTTCT	GCAATTCCGA	CCTCGTCATC	AGGGCCAAGT	TCGTGGGGAC	ACCAGAAGTC
130	140	150	160	170	180
AACCAGACCA	CCTTATACCA	GCGTTATGAG	ATCAAGATGA	CCAAGATGTA	TAAAGGGTTC
190	200	210	220	230	240
CAAGCCTTAG	GGGATGCCGC	TGACATCCGG	TTCGTCTACA	CCCCCGCCAT	GGAGAGTGTC
250	260	270	280	290	300
TGCGGATACT	TCCACAGGTC	CCACAACCGC	AGCGAGGAGT	TTCTCATTGC	TGGAAAACTG
310	320		340	350	360
CAGGATGGAC	TCTTGCACAT		AGTTTCGTGG	CTCCCTGGAA	CAGCCTGAGC
370	380	390		410	420
TTAGCTCAGC	GCCGGGGCTT	CACCAAGACC		GCTGTGAGGA	ATGCACAGTG
430	440	450	460	470	480
TTTCCCTGTT	TATCCATCCC	CTGCAAACTG	CAGAGTGGCA	CTCATTGCTT	GTGGACGGAC
490	500	510	520	530	540
CAGCTCCTCC	AAGGCTCTGA	AAAGGGCTTC	CAGTCCCGTC	ACCTTGCCTG	CCTGCCTCGG
550 GAGCCAGGGC	560 TGTGCACCTG	570 GCAGTCCCTG			600 CCTGCCCGGA
610	620	630	640		660
GTGGAAGCTG	AAGCCTGCAC	AGTGTCCACC	CTGTTCCCAC		CTTCCGGACA
670 ATGAAATAAA	680 GAGTTACCAC				

- 4. The portable DNA sequence of claim 2 wherein said sequence is capable of directing intracellular production of a collagenase inhibitor biologically equivalent to that isolable from human skin fibroblasts.
- 5. A recombinant-DNA cloning vector comprising a nuclectide sequence capable of directing intracellular production of metalloproteinase inhibitors.
- 6. The vector of claim 5 wherein said vector comprises a nucleotide sequence containing at least the following nucleotides:

10 GTTGTTGCTG	20 TGGCTGATAG	30 CCCCAGCAGG		50 GTGTCCCACC	60 CCACCCACAG
70 ACGGCCTTCT	80 GCAATTCCGA	90 CCTCGTCATC	100 AGGGCCAAGT	110 TCGTGGGGAC	120 ACCAGAAGTC
130 AACCAGACCA	140 CCTTATACCA	150 GCGTTATGAG	160 ATCAAGATGA	170 CCAAGATGTA	180 TAAAGGGTTC
190 CAAGCCTTAG	200 GGGATGCCGC	210 TGACATCCGG	220 TTCGTCTACA	230 CCCCCGCCAT	240 GGAGAGTGTC
250 TGCGGATACT	260 TCCACAGGTC	270 CCACAACCGC	280 AGCGAGGAGT	290 TTCTCATTGC	300 TGGAAAACTG
310	320 TCTTGCACAT	330	340	350	360
370	380 GCCGGGGCTT	390	400	410	420
430	440 TATCCATCCC	450	460	470	480
490	500 AAGGCTCTGA	510	520	530	540
550	560 TGTGCACCTG	570	580	590	600
610	620 AAGCCTGCAC	630	640	650	660
670		690	700		01100011011
ATGAAATAAA	GAGIIACCAC	CCACCAAAAA			

- 7. The vector pUC9-F5/237P10.
- 8. A recombinant-DNA method for microbial production of a metalloproteinase inhibitor comprising:
  - (a) preparation of a portable DNA sequence capable of directing a host microorganism to produce a protein having metalloproteinase inhibitor activity;
  - (b) cloning the portable DNA sequence into a vector capable of being transferred into and replicating in a host microorganism, such vector containing operational elements for the portable DNA sequence;
  - (c) transferring the vector containing the portable DNA sequence and operational elements into a host microorganism capable of expressing the metalloproteinase inhibitor protein;
  - (d) culturing the host microorganism under conditions appropriate for amplification of the vector and expression of the inhibitor; and
  - (e) in either order:
    - (i) harvesting the inhibitor; and
    - (ii) causing the inhibitor to assume an active, tertiary structure whereby it possesses metalloproteinase inhibitor activity.
- 9. The method of claim 8 wherein said metalloproteinase inhibitor is collagenase inhibitor.

## 10. The method of claim 8 wherein said portable DNA sequence is:

10	20	30	40	50	60
GTTGTTGCTG	TGGCTGATAG	CCCCAGCAGG	GCCTGCACCT	GTGTCCCACC	CCACCCACAG
70	80	90	100	110	120
ACGGCCTTCT	GCAATTCCGA	CCTCGTCATC	AGGGCCAAGT	TCGTGGGGAC	ACCAGAAGTC
130	140	150	160	170	180
AACCAGACCA	CCTTATACCA	GCGTTATGAG	ATCAAGATGA	CCAAGATGTA	TAAAGGGTTC
190	200	210	220	230	240
CAAGCCTTAG	GGGATGCCGC	TGACATCCGG	TTCGTCTACA	CCCCCGCCAT	GGAGAGTGTC
250	260	270	280	290	300
TGCGGATACT	TCCACAGGTC	CCACAACCGC	AGCGAGGAGT	TTCTCATTGC	TGGAAAACTG
310	320	330	340	350	360
CAGGATGGAC	TCTTGCACAT	CACTACCTGC	AGTTTCGTGG	CTCCCTGGAA	CAGCCTGAGC
370	380	390		410	420
TTAGCTCAGC	GCCGGGGCTT	CACCAAGACC		GCTGTGAGGA	ATGCACAGTG
430	440	450	460	470	480
TTTCCCTGTT	TATCCATCCC	CTGCAAACTG	CAGAGTGGCA	CTCATTGCTT	GTGGACGGAC
490	500	510	520		540
CAGCTCCTCC	AAGGCTCTGA	AAAGGGCTTC	CAGTCCCGTC		CCTGCCTCGG
550	560	570	580	590	600
GAGCCAGGGC	TGTGCACCTG	GCAGTCCCTG	CGGTCCCAGA	TAGCCTGAAT	CCTGCCCGGA
610	620	630	640	650	660
GTGGAAGCTG	AAGCCTGCAC	AGTGTCCACC	CTGTTCCCAC	TCCCATCTTT	CTTCCGGACA
670 ATGAAATAAA	680 GAGTTACCAC	690 CCAGCAAAAA	700 AAAAAAGGAA	TTC	

- 11. The method of claim 8 wherein said vector containing said portable DNA sequence is pUC9-F5/237P10.
  - 12. The method of claim 8 wherein said host microorganism is a bacterium.
- 13. The method of claim 12 wherein said bacterium is a member of the genus *Bacillus*.
  - 14. The method of claim 13 wherein said bacterium is Bacillus subtilis.

- 15. The method of claim 12 wherein said bacterium is Escherichia coli.
- 16. The method of claim 12 wherein said bacterium is a member of the genus *Pseudomonas*.
- 17. The method of claim 16 wherein said bacterium is *Pseudomonas* aeruginosa.
  - 18. The method of claim 8 wherein said host microorganism is a yeast.
  - 19. The method of claim 8 wherein said yeast is Saccharomyces cerevisiae.
- 20. The method of claim 8 wherein said inhibitor is harvested prior to being caused to assume said active, tertiary structure.
- 21. The method of claim 8 wherein said inhibitor is caused to assume said active, tertiary structure prior to being harvested.
- 22. A metalloproteinase inhibitor which is biologically equivalent to the collagenase inhibitor isolable from human skin fibroblasts produced by the method of claim 8.
- 23. The microorganism C600/pUC9-F5/237P10 having ATCC Accession No. 53003.
- 24. The portable DNA sequence of claim 1 wherein said nucleotide sequence is:

60	50	40	30	20	10
GGCCCCCTTT	AACCCACCAT	GACACCAGAG	CGCCCAGAGA	GCAGATCCAG	GGCCATCGCC
120	110	100	90	80	70
GGCCTGCACC	GCCCCAGCAG	GTGGCTGATA	TGTTGTTGCT	TTCTGCATCC	GACCCCTGGC
180	170	160	150	140	130
CAGGGCCAAG	ACCTCGTCAT	TGCAATTCCG	GACGGCCTTC	CCCACCCACA	TGTGTCCCAC
240	230	220	210	200	190
GATCAAGATG	AGCGTTATGA	ACCTTATACC	CAACCAGACC	CACCAGAAGT	TTCGTGGGGA

300	290		270	260	250
GTTCGTCTAC	CTGACATCCG		CCAAGCCTTA	ATAAAGGGTT	ACCAAGATGT
360	350		330	320	310
CAGCGAGGAG	CCCACAACCG		CTGCGGATAC	TGGAGAGTGT	ACCCCCGCCA
420	410	400	390	380	370
CAGTTTCGTG	TCACTACCTG	CTCTTGCACA	GCAGGATGGA	CTGGAAAACT	TTTCTCATTG
480	470	460	450	440	430
CTACACTGTT	TCACCAAGAC	CGCCGGGGCT	CTTAGCTCAG	ACAGCCTGAG	GCTCCCTGGA
540	530	520	510	500	490
GCAGAGTGGC	CCTGCAAACT	TTATCCATCC	GTTTCCCTGT	AATGCACAGT	GGCTGTGAGG
	590 AAAAGGGCTT		570 CCAGCTCCTC	560 TGTGGACGGA	550 ACTCATTGCT
660	650	640	630	620	610
GCGGTCCCAG	GGCAGTCCCT	CTGTGCACCT	GGAGCCAGGG	GCCTGCCTCG	CACCTTGCCT
720	710	700	690	680	670
CCTGTTCCCA	CAGTGTCCAC	GAAGCCTGCA	AGTGGAAGCT	TCCTGCCCGG	ATAGCCTGAA
780	770		750	740	730
AAAAAAAGGA	CCCAGCAAAA		AATGAAATAA	TCTTCCGGAC	CTCCCATCTT